

THE INVENTION CLAIMED IS:

1. An electron beam apparatus having an electron analyzer, comprising:  
an illumination optical system consisting of lenses and deflection means for illuminating electrons at a specimen, the electrons being produced and accelerated from an electron gun;

an imaging optical system for directing electrons transmitted through the specimen positioned within a magnetic field of an objective lens; and

said electron analyzer having a detection system for detecting the imaged electrons and energy selection means for energy-dispersing the detected electrons and selecting electrons having a certain energy,

wherein an accelerating voltage of the electron gun is varied to shift the detected energy of electrons and signals supplied to the lenses and deflection means of the imaging optical system are corrected using amounts of correction each obtained by multiplying an energy shift value corresponding to a variation in the accelerating voltage by a corrective coefficient.

2. An electron beam apparatus having an electron analyzer as set forth in claim 1, wherein the corrective coefficients can be calibrated.

3. An electron beam apparatus having an electron analyzer as set forth in claim 1, wherein corrective coefficient KI of the lenses and corrective coefficients KDx and KDy of the deflection means are calculated based on equations

$$KI = (I_2 - I_1) / (\delta E_2 - \delta E_1)$$

$$KDx = (IX_2 - IX_1) / (\delta E_2 - \delta E_1)$$

$$KDy = (IY_2 - IY_1) / (\delta E_2 - \delta E_1)$$

where  $I_1$  is the value of the current through the corrective lens and  $IX_1$ ,  $IY_1$  are the values of the current through the corrective deflection means when the energy shift is a first energy shift value of  $\delta E_1$ ,  $I_2$  is the value of the current through the corrective lens, and  $IX_2$ ,  $IY_2$  are the values of the current through the corrective deflection means when the energy shift is a second energy shift value of  $\delta E_2$ .